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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/699,648

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Hiroshi Furukawa

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1406

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06/29/2004

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EXAMINER

BLOUNT, STEVEN

ART UNIT

PAPER NUMBER

2661

9

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/699,648

**Applicant(s)**

FURUKAWA ET AL.

**Examiner**

Steven Blount

**Art Unit**

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first and second paragraphs of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 9 – 14 are rejected under 35 U.S.C. 112 second paragraph for failing to particularly point out and distinctly claim the subject matter which the applicant regards as their invention.

In claims 9 – 14, the use of the word “grasping” in line 3 is indefinite.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 24, and 25 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. patent 6,504,832 to Koo et al.

With regard to claim 1, Koo et al teaches generating quasi-orthogonal code through the use of a Walsh code in col 7 lines 24 – 31. Koo et al also teaches generating a long code in col 7, lines 37+. In line 39, it is stated that the long (scrambled) code is multiplied by the quasi-orthogonal code “to provide channelization”. See also col 9, lines 65+.

Beginning in col 9, line 34, a channel assigning procedure is described. In col 10, lines 37+, assigning priorities to codes having "(3) a higher priority (is) given to a fundamental channel or a control channel on which important control channel information should be transmitted with less errors." Spreading is discussed in col 7, line 44 – 47. Although it appears that this priority appears to be assigned to a Walsh code alone, the examiner believes that it would be obvious to one of ordinary skill in the art to apply this prioritization scheme to the combined long code/quasi-orthogonal code scheme mentioned above.

The examiner notes that, in addition to having the long code multiplied by the quasi-orthogonal code, it is stated in col 10, lines 2+, that a quasi-orthogonal code mask and Walsh code are "mixed" (col 10, line 2) to generate a quasi-orthogonal code. These quasi-orthogonal codes are assigned based on priority as described in col 10, lines 34+. The examiner believes that, while not explicitly stated, "mixing" is an obvious form of multiplying.

With regard to claim 24, quasi-orthogonal code is similar to orthogonal code.

With regard to claim 25, note the use of Walsh code.

5. Claims 2 – 23, and 26 – 39 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. patent 6,504,832 to Koo et al as applied above, and further in view of U.S. patent 6,421,335 to Kilkki et al.

With regard to claim 2, Koo et al teaches the invention as described above, but does not teach measuring channel quality and determining priority based on this. This is taught in Kilkki et al. See col 4, lines 15+ where it is stated that the trunk (tower sender)

performs priority calculations, and also col 4 lines 65+ where it is stated that the calculation unit receives the bit rate indicator. See also the signal/noise ratio discussed above. It would have been obvious to have measured the channel quality of Koo et al and determined priority based on this, in light of the teachings of Kilkki et al, in order to help provide an efficient method for distributing spread code in a CDMA system.

With regard to the following claims (hereinafter "Cl"), note the following:

Cl 3: setting priority of second code: see discussion of priority above, and note that separate priority values are assigned to the scrambling codes as shown in figure 1.

Cl 4: threshold values for number of users is discussed in col 17 lines 25+.

Cl 5: it is obvious to have the combined code have a higher priority as the first code goes higher, since the first and second codes are multiplied together.

Cl 6: see the combination of the rejections of claims 4 and 5 above in order to meet these claim limitations.

Cl 7: s/n ratio is a transmission quality, as is bit rate.

Cl 8 - 11: note the above, including the discussion in the rejection of claim 1 relating to s/n and calculation of the priority value; further note the discussion of the number of users in claim 4.

Cl 12 - 13: see above, as well as the mention of the calculation of bit rate by the mobile unit in col 4 lines 41+.

Cl 14: note bit rate in col 4 line 40 of Kilkki, and the discussion of signal to noise ratio in the abstract.

Cl 15: see discussion of the number of users above (col 3 lines 65+).

CI 16: see discussion of number of users, the discussion of multiple levels of scrambling code above, and setting priority levels.

CI 17: see discussion of number of users, and discussion of priority above.

CI 18 - 19: signaling channel is mentioned in col 4 lines 48+.

CI 20 and 22: see discussion of s/n ratio above.

CI 21: s/n ratio is a measure of signal power to noise power, and this is an obvious variant of simply "reception power" of the common control signal.

CI 23: see discussion of s/n ratio above, and further note that using different base station values to send different power level signals for determining priority, including those connected to the mobile stations.

CI 26: the means for allocating the second code, assigning priority, allocating the combined code, and sending the transmission signal are all discussed above.

CI 27 - 36: mobile measuring quality and transmitting this data to the base station, setting priority of the first and second codes, and determining threshold values to set the channel quality values within is discussed above.

CI 37 - 39: determining priority number of combined codes based on the number of users and the channel quality is discussed above, as is a discussion of using threshold values.

7. Claims 1 and 26 are rejected under 35 U.S.C. 103(a) as being obvious over Applicants Admitted Prior Art (AAPA) in view of U.S. patent 6,389,138 to Lie et al in and U.S. patent 6,580,703 to Okubo et al.

AAPA teaches that when different scramble codes are used in a CDMA system, and the transmission signals have different required qualities, the degree of interference varies among the different transmission signals, "thereby causing inequality in communication quality and deterioration due to interference" (page 4, lines 2+, as amended). AAPA also teaches the (well known) problem of there not being enough codes available. See page 2, lines 21+. AAPA does not, however, teach solving the code consumption problem by forming new codes by multiplying first and second codes together, and then assigning priorities to them in order to solve the interference problem mentioned above.

Lie et al teaches multiplying long code sequences with short code sequences in col 6 lines 61+ (Lie additionally teaches multiplying the scrambling sequence and a repeating cover sequence in col 7 lines 38+, and further teaches multiplying the I and O scrambling sequences by a complex scrambling code as discussed in col 7 lines 50+). Lie et al does not, however, discuss assigning priorities to these combined codes.


Okubo et al teaches assigning codes based on interference levels. See col 6 lines 50+.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have made more codes available to the CDMA system of AAPA by multiplying the short and long codes together, in light of the teachings of Lie et al, and to have further assigned priorities to the codes of AAPA/Lie et al, in light of the teachings of Okubo et al, in order to decrease the interference levels in the system.

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9. Examiner Steven Blount may be reached at 703-305-0319 between the hours of 9:00 and 5:30 Monday through Friday.

  
Ajit Patel  
Primary Examiner

SB  
  
6/18/04